An Incentive Model of Corruption in the Mediterranean and Balkan Region

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Abstract **- The study considers the determinants of corruption in the 23 Mediterranean and Balkan countries where it is widely recognized that this phenomenon is widespread. Starting from the general hypothesis that the extent of corruption in any country is a combination of motives and opportunities, our scope is to examine the most important economic, political and social factors that determine corruption in this region. We accept that motives are determined by the level of human development, while opportunities by the degree of government effectiveness, which in turn is determined by the level of economic development and the existing political system. We show that the level of corruption is affected by the degree of human development, while the degree of government effectiveness affects crucially the level of corruption. On its turn, government effectiveness is mainly determined by the level of economic development and the existing political system. Improving government effectiveness, increasing the levels of human and economic development and establishing a more democratic political system form therefore the pillars of any anticorruption strategies in these countries.**

Keywords - *Corruption motives; Corruption opportunities; Governance; Political rights; Human development; Balkans; Mediterranean countries.*

1. Introduction

The fact that whoever is in a place to exercise power may be in the position to use public office for personal gain, has been acknowledged from the first stages of human civilization (Caiden, 2001) or from the very first instances of organized human life (Klitgaard, 1988). Although the phenomenon of corruption dates as back as the very beginning of human existence, it is only in the last decades that it has become a major concern for theoretical and empirical research. The most significant reasons for this are the end of the cold war that reduced the geopolitical importance of many regions considered as corrupted and intensified pressures upon international aid, the increased global liberalization and integration and the shifts in the ways the public and the private sectors are viewed (Johnston, 2005). While the private sector is also affected by corruption[1], the vast bulk of economic literature examines only public sector corruption for two main reasons. First, the phenomenon is mainly associated with the public sector. In this context corruption is considered as a disease of public power and an indication of bad governance (Tiihonen, 2003). Second, widely accepted private sector corruption indices have not yet been constructed, rendering empirical research on the issue extremely difficult.

Public sector corruption is usually defined as the abuse of public power, office or authority for private benefit, interest or gain (World Bank, 1997; Tanzi, 1998, 2000; Rose-Ackerman, 1999)[2]. Corruption can take up several facets, such as bribery, embezzlement, fraud, extortion and nepotism (Amundsen, 1999). It must be admitted however that corruption is a deeply normative concept and its definitions are a matter of long-running debate (Johnston, 2005). It should be pointed out that corruption does not always relate to personal gain. More often than not, the benefited

[1] Private sector corruption, which manifests itself in various forms -such as the adoption of "bad practices"- by many large privately owned corporations in relation to the transparency of their data, publishing false accounting statements and the deception of stock-holders are extremely hard to measure, and there are no indicators allowing international comparisons. [For an analysis of private sector corruption see Transparency International (2009)]. As a result, the study of this phenomenon is limited to the public sphere.

[2] A definition that covers corruption in sectors, public and the private, is the misuse of trusted power for own profit (Transparency International, 2011).

from the phenomenon are the so-called third parties, namely families, friends or political parties. It has been established that in many countries the proceeds from corruption end up in financing political parties[3].

The determining factors of corruption are numerous. The most important ones according to the relevant theoretical and empirical research are the level of economic development (Lalountas, Manolas, and Vavouras, 2011), the level of poverty and the degree of income inequality (Salvatore, 2004; Salvatore, 2007), the specific type of political authority, the quality of governance, the quality of the institutional framework (Salinas-Jiménez and Salinas-Jiménez, 2007), the degree of globalization (Bonaglia, Braga de Macedo and Bussolo, 2001), the level of competition, the structure and the size of public sector, the cultural qualities, the geographic location and history (Goel and Nelson, 2010; Rontos, Sioussiouras, and Vavouras, 2012)[4]. Widespread corruption largely unveils the existence of institutional and political weaknesses as well as economic and social underdevelopment. It is recognized that corruption may be the single most significant barrier to both democratization and economic development (Rose-Ackerman, 1999).

The analysis of corruption should not focus exclusively on its economic, political and social aspects. The general attitude towards this phenomenon is also determined by the prevailing system of individual behavioral and moral attributes, since not all people facing the same socioeconomic environment are equally prone to corruption exhibiting identical opportunistic behavior. However, the phenomenon seems to depend less on the individual psychological or personality characteristics of public employees and more on the cultural, institutional and political basis on which the specific nation is constructed (Sung, 2002), not ignoring of course and the level of its economic development. The extent of corruption varies therefore among countries and because corruption operates in a certain cultural and political context that influences its growth (Benson and Cullen, 1998). In the end corruption could be considered rather as a social problem than a problem of human nature (Bracking, 2007). And as a social problem it is inevitable but variable as well, while it is evaluated in terms of structure, process and resultant (Girling, 1997).

Generally, the determinants of corruption could be distinguished between those that affect the motivations or incentives of agents to engage in corruption and those that create opportunities for corrupt activities (Martinez-Vazquez, Arze del Granado and Boex, 2007). The opportunities available for corruption in various societies are mainly the product of economic and political forces. It is on this theoretical background that we develop our theoretical and empirical model of public sector corruption in the Mediterranean and Balkan region.

Referring to the analysis of the phenomenon of corruption, the most important issue that has emerged in the recent decades is the relation between corruption and economic development. In this context, corruption is considered to be a cause as well as a consequence of poverty. In a sense, corruption is a deficiency that is responsible for low levels of economic development by reducing the chances for long-term economic growth (Lambsdorff, 2007; Aidt, 2009). It should also be pointed out that it is commonly accepted that corruption is a barrier to the implementation of the necessary for development political, economic and social reforms (Transparency International, 2008). The extent, however, of the consequences corruption has on economic development is largely determined by the existing institutional framework (de Vaal & Ebben, 2011). On another account, corruption is a “disease” which is caused by poverty, that is controlled only when economies develop (Treisman, 2000; Paldam, 2002). Hence, there is a “corruption transition” (Gundlach and Paldam, 2008).

The direction of causality between corruption and per capita income as an approximation of the level of economic development has already been under scrutiny in relevant empirical literature. Recent studies show that the direction of causality is mainly from income towards corruption. In this manner, one can reach the conclusion that the levels of corruption become lower when countries become richer and that there can be a transition from poverty to honesty and straightforwardness (Gundlach and Paldam, 2008). However, corruption control should not be considered as a “luxury good” that citizens demand automatically once their average income reaches a certain level. It is achieved only through the adoption and the efficient implementation of the appropriate long-run policies. Moreover, we must point out that corruption is extensive in low income countries, not because their

[3] See relevant analysis in Tanzi (2000).
[4] For an analysis of the determinant factors of corruption see among others Lambsdorff (2006) and Treisman (2000).

inhabitants present a natural proclivity towards the said phenomenon, but because the conditions of life make them prone to that (Lalountas et al., 2011). That is it is not because people in low income countries are more corruptible than their counterparts in high income countries, but it is simply because conditions in poor countries are more conducive for the growth of corruption (Myint, 2000). The motive for the increase of personal income is indeed intense and is becoming more so due to widespread poverty and the low salaries of the public sector (Gray and Kaufmann, 1998). In low income economies, corruption can prove to be a "survival strategy" (Rose-Ackerman, 1999).

It is also widely accepted that the political system and the phenomenon of corruption are closely related. Corruption is widely considered to be both a symptom and a cause for the malfunctioning of democratic institutions (Warren, 2004). According to the mainstream view political development and, especially, democracy prove restrictive for the proliferation of corruption, especially political corruption, mainly because of the competition they set as a precondition for the acquisition of political office, which in turn presupposes widespread democratic participation. In a sense, the political system or the "political macrostructure" is responsible for determining the political motivation of all players in a state system and it is the very reaction of these factors that determines the behavior of state bureaucracy (Lederman, Loayza and Soares, 2005). As a result, a highly developed and well-functioning democracy serves to block the spread of corruption (Zhang, Cao and Vaughn, 2009).

The relevant empirical analysis has established the view that democracy reduces corruption, without necessarily immediate results. A long democratic period seems to be a determining factor for reducing the scale of corruption (Treisman, 2000). In this sense, one can easily assume that it is the democratic tradition or the time exposure to democracy and not just the adoption of a democratic regime that reduces corruption. Besides, limited forms of democracy do not seem to affect corruption[5]. It is only after a certain level that democratic practices seem to contribute to corruption control (Montinola and Jackman, 2002)[6].

We argue that the level of economic development and the existing political system establish the degree of government effectiveness that determines the opportunities open to corruption activities in a given country. Government effectiveness generally refers to governance quality and performance or to the degree that the public sector achieves the objectives it is supposed to meet.

We accept moreover that corruption is also affected by the level of human development that determines the motives to engage in corruption activities. Human development is defined as the process of enlarging or expanding people's choices (UNDP, 1990). That is human development refers to the expansion of people's freedoms and capabilities to live their lives as they choose (UNDP, 2009)[7]. The most critical of these choices are to leave a long and healthy life, to be educated and to enjoy a decent standard of living. We argue that the chances open to individuals to live a long and healthy life, their accessibility to knowledge and their expectations to enjoy a decent standard of living define their corruption boundaries. However, it is sometimes suggested that there are some potential feedback links between corruption and human development or even that the opposite direction of causality might also exist. That is the level of human development could be affected by corruption as well, if we accept that corruption reduces the rate of economic growth and government expenditure on education and health, factors that exert negative influence on standards of living, life expectancy and human capital accumulation (Akçay, 2006).

The scope of the present paper is to examine the above opportunities and motives as the main causes of corruption in the Mediterranean and Balkan region. Our analysis focuses on the study of the impacts that government effectiveness and human development have on corruption in this region, while we accept that government effectiveness is mainly determined by the level of economic development and the existing political system.

Our analysis shows that in this region government effectiveness is actually the most important determining factor of corruption and that this factor is indeed determined by the level of economic development and the existing political system. As a result improving government effectiveness, increasing the levels of human and economic development and establishing a more

[5] According to certain empirical analyses, limited democratic regimes are associated with higher levels of corruption compared to autocratic regimes. See relevant presentation in Lambsdorff (2006).

[6] For an analysis of the correlation between democracy and corruption see Vavouras, Manolas and Sirmali (2010).

[7] For an analysis of the evolution of the definitions of human development, see in Alkire (2010).

democratic political system form the pillars of any anticorruption strategies in the Mediterranean and Balkan region, given the fact that the countries belonging to this region are characterized by lack of homogeneity as far as the level of their economic development and their extent of democratic institutions.

2. Methodology, data and analysis

2.1. Model specification

Following the analysis presented above, we argue that the most important factors that determine corruption are government effectiveness and human development, while government effectiveness is determined by the level of economic development and the existing political system.

We must point out at this stage that it seems that there is a strong correlation between two of the selected independent variables, namely between human development and economic development, since the level of economic development determines to a large extent the level of human development[8]. This multicollinearity problem reveals a difficulty to model effectively the factors that determine corruption by using OLS method of one equation, that is in the case that we would consider and the four explanatory variables as independent. Mainly for this reason we use a two equation model.

Very often the complexity of the real world is better explained by quantitative techniques which employ more than one relationship among the involved variables. In fact the real word could be effectively explained by a model with numerous well defined equations simultaneously existing. Of course a great number of equations causes problems to the logical explanation of the phenomenon through the model results. Problems of this kind are more serious when prediction is the target of the model's construction.

To express corruption, the corruption perceptions index (CPI) is used as a predicted variable. The CPI is an international index measured annually by the nongovernmental organization Transparency International (2010) for 178 countries or regions. CPI is the most extensively used index for relevant empirical studies. It is a composite indicator, based on a variety of data derived from 13 different surveys carried out by 10 independent and reputable organizations. It measures corruption in a scale from 0 to 10, where 0 represents the highest possible corruption level, while as the scale increases there is the perception that corruption does not exist in a given country. Despite the fact that the index is not the outcome of an objective quantitative measurement of corruption, it is of great importance since it reveals how this phenomenon is being perceived.

To express government effectiveness the relevant World Bank government effectiveness indicator (GE) is used. This indicator is very useful because it aims at capturing the quality of public services provided, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies (Kaufmann, Kraay and Mastruzzi, 2010). The aim of the indicator is therefore to capture the capacity of the public sector to implement sound policies. GE is one of the six composite indicators of broad dimensions of governance, the so called worldwide governance indicators (WGI) covering over 200 countries since 1996 and produced by Kaufmann, Kraay and Mastruzzi (World Bank, 2010b). The values of GE lie between -2.5 and 2.5. Actually, the variable has been transformed to a standard normal one (with mean 0 and standard deviation 1), so that cross-country and over time differences in the measurement scale are avoided. Higher values correspond to better governance. Although this indicator measures subjective perceptions regarding government effectiveness and it is not the outcome of a quantitative objective measurement, it is of a great importance since it reveals how government effectiveness is being perceived.

As a summary measure of the level of human development we use the non-income value of the human development index (HDI). The HDI is estimated by the UNDP (2010) and it measures the average achievements in a given country in three dimensions of human development: a long and healthy life, access to knowledge and a decent standard of living. It is a composite index with life expectancy in birth, mean years of schooling, expected years of schooling and gross national income (GNI) per capita as its main components. Since there is a strong correlation between HDI and GNI per capita which is included in the model as a separate explanatory variable, we use the non-income HDI value as it is estimated by UNDP. Despite its inherent limitations this index is a useful comparative measure of the level of human development. According to HDI countries are classified in three categories: High human development if the value of the index is higher than 0.800, medium human development if the value of the index is between 0.500 and 0.799 and low human development, if the value of the index is lower than 0.500.

The level of economic development is approximated by gross national income (GNI) per capita in thousand US$. The World Bank (2010a) data for GNI per capita in US$ are used. GNI per capita is the gross national income converted to US$ using the World Bank Atlas method, divided by the midyear population[9].

[8] The appearance of a strong correlation between these independent variables is examined in Rontos et al. (2012).

[9] For the methodology used to estimate GNI per capita, see World Bank (2011).

The existing political system is approximated by the political rights index (PR). PR is a measure of the democracy level in each country as it is estimated by the organization Freedom House (2011). The PR index is an extensively used index for the measurement of democracy. The index measures from 1, which ranks a country as very free, up to 7, which ranks a country as not free. Freedom House classifies countries according to PR in 3 categories adopted in the present study: free countries (F) with score 1-3 in the 1-7 scale, partly free countries (PF) with score 4-5 in the 1-7 scale and not free countries (NF) with score 6-7 in the 1-7 scale.

The values of all the variables used in the model are presented in table 1.

Table 1. Countries, variables and data of the model

Country (1)	CPI 2010 (2)	PR 2010 (3)	GNI pc 2009 (in 000 $) (4)	HDI 2010 (non-income value) (5)	GE 2009 (6)
Albania	3.3	3	4	0.787	-0,2
Algeria	2.9	6	4.42	0.716	-0.59
Bosnia & Herzegovina	3.2	4	4.70	0.771	-0.65
Bulgaria	3.6	2	6.06	0.795	0.142
Croatia	4.1	1	13.72	0.798	0.639
Cyprus	6.3	1	26.94	0.84	1.32
Egypt	3.1	6	2.07	0.657	-0.3
France	6.8	1	42.62	0.898	1.442
FYROM	4.1	3	4.40	0.742	-0.14
Greece	3.5	1	29.04	0.89	0.608
Israel	6.1	1	25.79	0.916	1.095
Italy	3.9	1	35.11	0.882	0.517
Kosovo	2.8	5	3.24	…	-0.5
Lebanon	2.5	5	8.06	...	-0.67
Libya	2.2	7	12.02	0.775	-1.12
Malta	5.6	1	16.69	0.85	1.11
Montenegro	3.7	3	6.65	0.825	-0.03
Morocco	3.4	5	2.77	0.594	-0.11
Serbia	3.5	2	6.00	0.788	-0.15
Spain	6.1	1	32.12	0.897	0.936
Syria	2.5	7	2.41	0.627	-0.61
Tunisia	4.3	7	3.72	0.729	0.414
Turkey	4.4	3	8.72	0.679	0.352

Notes: CPI = Corruption Perceptions Index, PR = Political Rights, GNI pc = Gross National Income per capita, HDI = Human Development Index, GE = Government Effectiveness.

Sources: CPI: Transparency International (2010). PR: Freedom House (2011). GNI pc: World Bank (2010a). HDI: UNDP (2010). GE: World Bank (2010b).

Following the analysis of the behavioural equations and the definitions of the variables used, the following two equation model is developed to interpret corruption opportunities and motives in the Mediterranean and Balkan region, assuming at this stage that government effectiveness itself is affected by the level of corruption:

$$CPI = f(GE, HDI) \quad (1)$$

and

$$GE = f(GNI, PR, CPI) \quad (2)$$

The first equation denotes the hypothesis that CPI is affected by GE as a measure of the opportunities provided to participate in corruption activities and the non-income HDI as a measure of the motives to participate in these activities. The second equation expresses the tendency of GE to depend on GNI, PR and possibly to CPI itself. The 2-stage least squares method is used to run the above system of equations.

2.2. Estimation results

Each of the endogenous variables of the model, CPI and GE, are predicted by the exogenous variables GNI, PR and HDI. Then we run equations 1 and 2 by using the predicted, in the first stage, CPI and GE. Stepwise method is used. According to that procedure, the following equations are predicted:

$$CPI = 2.694 + 1.511\ GE + 1.231\ HDI \quad (R^2 = 0.512) \quad (1)$$

and

$$GE = 1.245 + 0.035\ GNI - 0.196\ PR - 0.218\ CPI \quad (R^2 = 0.706) \quad (2)$$

Examining the 1st equation we can conclude that the b coefficients of both independent variables have signs in the expected direction suggesting that the higher the government effectiveness (GE) and the higher the human development (HDI) in the countries concerned, the lower the perceived level of corruption (the higher the corruption index) and the lower the GE and HD the lower the corruption.

In the 2nd equation, the b coefficients of GNI and PR are in the expected direction, implying that the higher the GNI per capita and the PR (the lower

the PR index), the higher the GE and the lower the GNI per capita and the PR, the lower the GE. The b coefficient of CPI however is not in the right direction as it indicates that the higher the corruption (the lower the CPI) the higher the GE and the lower the corruption the lower the GE. This economic insignificance is probably due to the fact that to run a more accurate regression model with 3 independent variables a larger number than 23 cases should exist.

This inconvenience leads us to run equation 2 again, rejecting CPI variable from the model. In that way the final model is the following:

$$CPI = 2.694 + 1.511\ GE^* + 1.231\ HDI \quad (R^2 = 0.512) \qquad (1)$$

$$GE = 0.347 + 0.024\ GNI^* - 0.156\ PR^* \quad (R^2 = 0.701) \qquad (2a)$$

* Statistical significance at 0.05 level.

In the last model CPI and GE constitute the endogenous variables of the system that depend overall on GNI, PR and HDI.

The variables GE, GNI and PR present statistical significance at 0.05 level. HDI does not present a significance of this kind, but we keep the variable in the model as our case is not a sample of countries, but all the population of the Mediterranean and Balkan countries, a fact that renders inference procedures of a lower interest. In fact we prefer the statistical significance of b's to be one of the criteria for rejecting the variables but not the main reason for that. What we suggest is that as the variable adds to the percentage of the explained variation of the dependent variable we keep it in the model. Overlapping the typical limits of statistical significance in models with cross-country variables, which are in fact composite indicators, is suggested in relative methodological papers as an approach reflecting "the reality that available data are proxies for the concepts that we try to measure" (Kaufmann, Kraay and Mastruzzi, 2010). Normality and linearity tests as well tests for homoscedasticity, autocorrelation and multicollenearity problems are provided in the following for equations 1 and 2a.

Equation 1:

The equation has a quite good total explanatory performance, as the coefficient of determination $R^2_{GE, HDI}$ = 51.2 %. GE is the first explanatory variable entering to the model, explaining the most of the dependent's variation (R^2_{GE} = 50.9 %). HDI enters as a second variable adding just 0.3 % to the explanatory capacity of the model.

The normality of the studentized deleted residuals is not violated as they present a skewness statistic equal to -0.087 with Std. Error = 0.481 (Sk. Stat/ Std. Error = 0.18<2) and kurtosis statistic equal to -0.351 with Std. Error = 0.935 (Kur. Stat/ Std. Error = 0.38<2). The skewness and kurtisis statistics for unstandardized residuals are similar. Additionally, Kolmogorov-Smirnov test verifies the normality of residuals (K-S statistic = 0.108, df = 23, p = 0.20 > 0.05). Linearity is assumed to exist according to the correlation parameters presented in table 2.

Table 2. Pearson correlation between variables of equation 1

Pearson Correlation	CPI	GE	HDI
CPI	1.000	0.714*	0.582*
GE		1.000	0.769*
HDI			1.000

* Statistical significance at 0.01 level.

Additionally, a relatively strong correlation between independent variables appears (table 2), a fact that indicates the existence of possible multicollinearity problems. Tolerance statistics is not too low (0.409) and VIF is not too high (VIF = 2.447 < 10) for all independent variables, indicating no serious multicollinearity problems. The conditional index for the last dimension is 29.89 < 30, a result confirming the above findings (table 3). On the opposite side are the rest 2 collinearity diagnostics of table 3. Eigenvalue is almost 0, and the variance proportions in last dimension is high, both indicating the existence of multicollinearity problems.

Table 3. Collinearity diagnostics of equation 1*

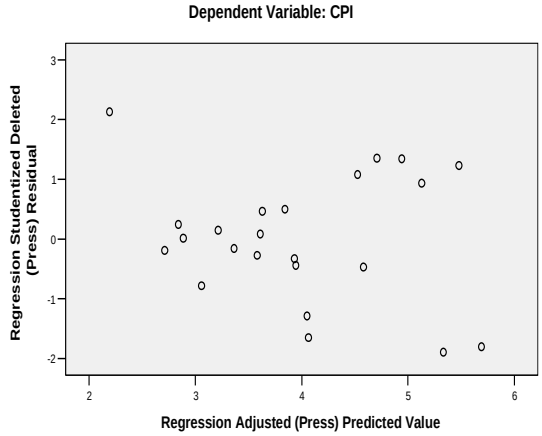
Model	Dime-nsion	Eigen-value	Condition index	Variance proportions		
				Constant	GE	HDI
1	1	1.37	1.00	0.31	0.31	
	2	0.63	1.48	0.69	0.69	
2	1	2.26	1.00	0.00	0.03	0.00

	2	0.74	1.75	0.00	0.39	0.00
	3	0.00	29.89	1.00	0.58	1.00

* Dependent variable: CPI.

The Durbin-Watson test did not indicate autocorrelation as d = 1.973 > du = 1.54 and 4-d = 2.03 > du = 1.54 with explanatory variables K = 2, a = 0.05 and n = 23.

Figure 1: Scatterplot of Residuals vs. Predicted Values



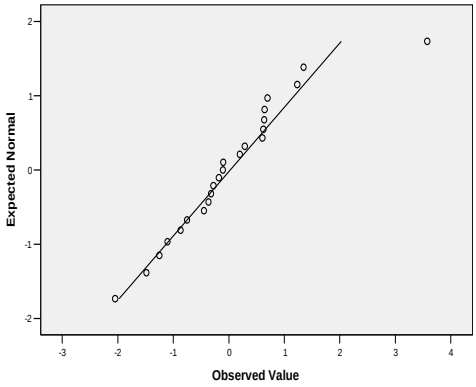
The homoscedasticity assumption seems also to be approximately followed according the scatter-plot in figure 1.

Equation 2a:

Equation 2a presents a very good total explanatory performance ($R^2_{PR, GNI}$ = 79.1 %). PR is the first variable entering to the model, with a contribution of 60.9 % to the explanation of GE variation. GNI is entering to the model as a second variable with a contribution to the total R^2 equal to 9.2 %.

The unstandardized residuals normality is revealed by skewness statistic (0.631 with std. error = 0.481 and Sk.stat/ Std Error = 1.3<2), kurtosis statistic (1.031 with std error = 0.935 and Kurt. Stat/ Std. Error = 1.1<2) and Kolmogorov-Smirnov test (0.111, df = 23, p = 0.20>0.05). Studentized deleted residuals statistics and tests present similar results except the ratio Kurt/ Std. Error = 3.2 which is higher than the empirical limit of 2 which is suggested by statistics. However, Normal Q-Q plot for studentized deleted residuals in figure 2 do not present serious violation of normality.

Figure 2: Normal Q-Q Plot of Studentized Deleted Residual



Strong linear relation seems to exist between independent and each of the dependent variables (table 4).

Table 4. Pearson correlation between variables of equation 2a

Pearson Correlation	GE	GNI	PR
GE	1.000	0.759*	-0.780*
GNI		1.000	-0.690*
PR			1.000

* Statistical significance at 0.01 level.

Although the correlation index between variables is relatively (but not very) high ($r_{GNI, PR}$ = -69 %< 0.70), tolerance statistics is high enough (0.524 for both independent variables), VIF = 1.91 < 10 for both variables and condition index = 6.844 < 15, are statistical evidences that collinearity is not a concern. Eigenvalues (= 0.049 ≅ 0) and variance proportions are the only statistics that indicate possible collinearity problems (table 5).

Table 5. Collinearity diagnostics of equation 2a*

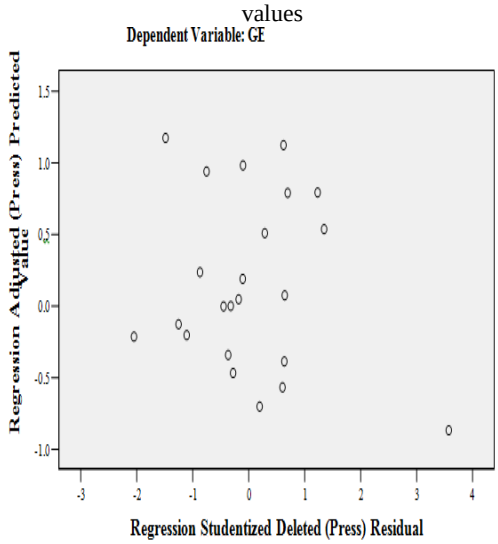
Model	Dimension	Eigenvalue	Condition index	Variance proportions		
				Constant	PR	GNI
1	1	1.833	1.000	0.08	0.08	
	2	0.167	3.312	0.92	0.92	
2	1	2.303	1.000	0.02	0.02	0.03
	2	0.648	1.885	0.00	0.10	0.21
	3	0.049	6.844	0.98	0.87	0.76

* Dependent variable: GE.

The Durbin-Watson test reveals that there are no autocorrelation problems as d = 1.732 > du =

1.54 and 4-d = 2.268 > du = 1.54 with K=2, a = 0.05 and n = 23. Finally, the homoscedasticity assumption seems to be followed in equation 2a as the scatter -plot of the expected values against the residuals is similar to that of figure 3.

Figure 3: Scatterplot of Residuals vs. Predicted values



Concluding the evaluation of the 2-equations model predicted in the present study we could argue that it presents a good economic and statistical performance in addition to its sound theoretical basis. The coefficients in both equations present economic significance and, at the same time, statistical significance, with HDI as an exception in equation 1. As we have already explained, inferential statistics are not a reason to reject a variable because of its insignificance, as we deal with a population rather than a sample of cases (countries). The equations of the model present a good total explanatory performance and seem to follow the regression assumptions, with the exception of some multicollinearity problems revealed by only a part of diagnostic statistics. These results suggest to approve the model and to move to its further discussion.

3. Conclusions and policy proposals

3.1. Conclusions

The above empirical analysis highlighted the most significant factors that determine the level of corruption in the Mediterranean and Balkan region, namely the level of economic development as it has been approached by GNI per capita, the form of the existing political system as it has been approached by the extent of political rights and the level of human development as it has been approached by the non-income value of the human development index. The first two variables, that is GNI per capita and political rights affect corruption through their impact on government effectiveness, which is the second endogenous variable of the model apart from corruption.

The level of economic development is the most important variable that affects the degree of corruption in the Mediterranean and Balkan region[10]. The two variables are negatively correlated, since increasing GNI per capita, increases government effectiveness which reduces corruption. However, the effective control of corruption should not be considered as a "luxury good" that people demand once their incomes increase to a certain level. It is achieved only through the adoption and effective implementation of the appropriate long-run policies. On the other hand, corruption inhibits economic development since it is an obstacle to the effective implementation of the necessary to development political, economic and social changes. Even though the consequences corruption has on economic development depend also on the existing institutional framework, the direction of causality between corruption and per capita income -as the critical factor that reflects the level of development-, has not been entirely identified. It has been shown, nevertheless, that the level of corruption is an extensive one in the low income countries of the Mediterranean and Balkan region (Rontos et al., 2012). And this is because generally in low income countries, corruption is to some extent a "survival strategy". In order to survive and support themselves and their families, low paid public sector employees may need to moonlight or take small bribes, especially when their jobs are associated with high degree of uncertainty, mainly due to the prevailing political instability, that reduces their expected incomes. And political instability is a characteristic of many countries in that region. According to this line of thought, corruption is a "disease" caused by poverty, or a by-product of poverty that diminishes only with economic development.

As far as the character of corruption is concerned, it could be argued that the main difference between developed and developing countries is that the former are characterized by "grand" or "upper-level" corruption and the latter are ridden with "petty" or "lower-level" corruption.

[10] See relevant analysis in Rontos et al. (2012).

Grand corruption is that form of corruption that pervades the highest levels of government engendering major abuses of power, while petty corruption involves the exchange of very small amounts of money and the granting of small favors (UN, 2004). The first form of corruption, often described as "political", is generally associated with high-level politicians or government officials and is realized at the stage of policymaking and usually takes the form of economic scandals involving large sums of money. This systemic corruption can undermine state legitimacy and economic functioning (Rose-Ackerman, 2006). The second, often described as "bureaucratic" or "administrative", relates to the implementation stage of state functions by lower level government employees at their regular interact with the public and usually takes the form of small bribes, widely described as "speed money", and favors. The last form of corruption is also described as "needs-based" or "survival" corruption (UNDP, 2008). It could be argued that this basic distinction of corruption applies also to the developed and developing Mediterranean and Balkan countries.

The extent of political rights is the second variable that affects the degree of corruption in the Mediterranean and Balkan region. Generally, the more open the democracy is in a country the more the phenomenon of corruption is limited in this country. Corruption could therefore be considered both as a symptom of and as a cause for the malfunctioning of democratic institutions. On the other hand political development and democracy can reduce corruption. However, the transition form an autocratic to a democratic political regime does not constitute the critical turning point for controlling corruption, especially when the latter has been present for a considerable period of time and has identified itself as a bad practice of the "institutional" state structure[11]. It is only the long and true democratic form of government, that is the establishment of a genuine democratic tradition, that proves to be of critical importance for tackling corruption. Only when democratic institutions have been consolidated we can argue convincingly that they reduce corruption. It could be accepted therefore that an important guarantee for crushing corruption is securing the smooth functioning of democratic institutions. Notions such as transparency, collectivism, rule of law etc., constitute but a few of the ingredients to a successful recipe of a smooth operation of a lawful state. It goes without saying that even in western type democracies one can encounter phenomena of institutional degradation in favor of personal gain. However, these take the form of economic scandals rather than large-scale corruption.

The level of human development is the third variable that affects the degree of corruption in the Mediterranean and Balkan region. Improving the quality of life and increasing the level of education reduces the motives of public officials to resort to corruption. These objectives however require the effective implementation of the appropriate long-run policies.

3.2. Policy proposals

From the above analysis we realize that improving government effectiveness by increasing the level of economic development and by establishing a more democratic political system and increasing the level of human development form the basic pillars of any anticorruption strategies in the Mediterranean and Balkan region, given its economic and political heterogeneity.

As it can be realized from table 1, many Mediterranean and Balkan countries could be characterized as highly corrupted especially Libya, Syria, Lebanon, Kosovo and Algeria. These countries are also characterized by low government effectiveness, by low levels of political freedom, and with the exemption of Libya, by low levels of per capita income. The Mediterranean Sea forms a natural border between two worlds. The northern, on the one hand, that comprises the European countries and the southern and eastern on the other, that comprises the Arab countries, with the exceptions of Turkey, Israel, Cyprus and Malta. These two worlds present great socio-cultural and politico-economic disparities. This very reality proves a challenge for the EU in its overall approach to the South East Mediterranean region. The EU from 1992 onwards[12] has attempted to intervene politically in SE Mediterranean[13]. The establishment of a Euro-Mediterranean Zone[14], based on two pillars (namely, economy and culture), is estimated that it will reduce the existing "prosperity gap" between the two regions[15], and thus it will reduce the level of corruption. These are the lines along which the Euro-

[11] The control of corruption is extremely difficult when the phenomenon becomes institutionalized and is not considered spontaneous. Easterly (2001) was the first to distinguish corruption into spontaneous and institutionalized or systemic.

[12] Culminating in the Barcelona Declaration of 1995.

[13] Its main objective has been to bridge the gap in the socioeconomic sector, which in turn will lead to the resolution of the greater part of the problems that this region is facing (Sioussiouras, 2007).

[14] See further Sioussiouras (2003).

[15] See extensively Seimenis and Sioussiouras (2003).

Mediterranean partnership is actually moving (Sioussiouras and Vavouras, 2012).

Corruption is also widespread in the Balkans where many countries are characterized by high unemployment rate, large hidden economy, organized crime, drugs proliferation, downgraded parliamentary institutions and migration (Dalaklis, Sioussiouras, and Karkazis, 2008). In some countries economic and political instability prevails. The existence of a regime of impunity that normally is well in place, contributes greatly in further strengthening corruption. It is not therefore surprising that a large part of the administrative mechanism in some Balkan countries does not function without the "contribution" of the necessary "supplement".

In 2003 a EU Commission report mentioned that extensive corruption levels in the Balkan countries constituted a serious obstacle to their economic reforms, with bleak prospects for their own future. Tax and social security revenues are seriously undermined, and all attempts to invest in many of those countries are made almost impossible (Sioussiouras, 2005). Given the fact that the majority of investment in the Balkan countries comes from the EU member-states, one could easily draw the conclusion that EU's role in the process towards the economic development and the political stabilization and hence to the reduction of corruption of the region is very important. The Stability Pact for South East Europe, which was put into effect in 1999, constitutes one serious step towards this direction[16]. The Initiative against Corruption that was included in the Pact provides the Balkan countries with the guidelines they need to follow[17]. The overall aim is the incremental incorporation of the Balkans into the European family of countries[18].

Generally, the Stability Pact for South East Europe and the Euro-Mediterranean Cooperation Agreement constitute the two EU policies that are expected to contribute decisively to the effective reduction of corruption in the region, given the fact that they aim at strengthening the most important factors that improve government effectiveness, namely democratic institutions and economic development, as it has been shown in the present study.

Since corruption finds fertile ground for growth in countries that find themselves in economic, political and social instability and underdevelopment, the more developed, democratic, unitary, concrete and stable the country is, the harder it becomes for phenomena that can paralyze state structures like corruption to prosper. On the contrary, countries that are characterized by low levels of economic development, by ethnic and cultural disparities and disputes, by persistent social inequalities and lack of consolidated democratic institutions, can be very easily infiltrated by corruption.

Finally, however, in a world that is more and more globalized it is natural that inter-state relations are increasingly taking the form of communicating vessels. Under these circumstances, corruption cannot always be solely attributed to inherent deficiencies of the existing political and economic systems. Imported factors might influence the level of corruption, especially in low income economies. In these countries corruption is sometimes taking gigantic proportions and due to the policies of developed states entrepreneurs who export illicit practices to them in order to exploit their institutions for their own benefit.

[16] See www.seepad.org.

[17] See Stability Pact Anti-Corruption Initiative (SPAI). The creation of SPAI took place in February 2000 with the aim to fight corruption. The Council of Europe, the European Commission, the OSCE and the World Bank assist SPAI in implementing its aims. www.oecd.org/daf/ SPAIcom.

[18] See further Dalaklis and Sioussiouras (2007).

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References

[1] Akçay, S. (2006). Corruption and human development. *Cato Journal, 26.*

[2] Aidt, T.S. (2009). Corruption, institutions, and economic development. *Oxford Review of Economic Policy, 25.*

[3] Alkire, S. (2010). *Human development: Definitions, critiques, and related concepts*. Human Development Research Paper 2010/01. UNDP.

[4] Amundsen, I. (1999). Political corruption: An introduction to the issues. Working Paper 99:7. Bergen: Chr. Mickelsen Institute.

[5] Benson, M.L. & Cullen, F.T. (1998). *Combating corporate crime: Local prosecutors at work.* Boston: Northeastern University Press.

[6] Bonaglia, F., Braga de Macedo, J. & Bussolo, M. (2001). How globalization improves governance. OECD Working Paper No. 181.

[7] Bracking, S. (2007). Political development and corruption: Why 'right here, right now!'? Bracking, S. (Ed.), *Corruption and development: The anti-corruption campaigns*. N.Y.: Palgrave Macmillan.

[8] Caiden, G.E. (2001). Corruption and governance. Caiden, G.E., Dwivedi, O.P. & Jabbra, J. (Eds.), *Where corruption lives.* Kumarian Press.

[9] Dalaklis, D. & Siousiouras, P. (2007). International security and stability: The Western European Union and the European Integration. *Middle East Forum, 6.*

[10] Dalaklis, D., Sioussiouras, P. & Karkazis, I. (2008). Scrutinizing the European security and integration effort: The question of the Western Balkans. *Middle East Forum, 8.*

[11] de Vaal, A. & Ebben, W. (2011). Institutions and the relations between corruption and economic growth. *Review of Development Economics, 15.*

[12] Easterly, W. (2001). *The elusive quest for growth: Economists' adventures and misadventures in the topics.* Cambridge MA: MIT Press.

[13] Freedom House (2011). *Freedom in the world. The authoritarian challenge to democracy.*

[14] Girling, J. (1997). *Corruption, capitalism and democracy*. London and N.Y.: Routledge.

[15] Goel, R.K. & Nelson, M.A. (2010). Causes of corruption: History, geography and government. *Journal of Policy Modeling, 32.*

[16] Gray, C.W. & Kaufmann, D. (1998). Corruption and development. *Finance and Development*, March.

[17] Gundlach, E. & Paldam, M. (2008). *The transition of corruption: From poverty to honesty*. Kiel Institute for the World Economy, Working Papers, No. 1411.

[18] Johnston, M. (2005). *Syndromes of corruption: Wealth, power, and democracy*. Cambridge: Cambridge University Press.

[19] Kaufmann, D., Kraay, A. & Mastruzzi, M. (2010). *The worldwide governance indicators: Methodology and analytical issues*. World Bank, Policy Research Working Paper No. 5430.

[20] Klitgaard, R. (1988). *Controlling corruption*. Berkeley: University of California Press.

[21] Lalountas, D.A., Manolas, G.A. & Vavouras, I.S. (2011). Corruption, globalization and development: How are these three phenomena related?. *Journal of Policy Modeling, 33.*

[22] Lambsdorff, J.G. (2007). *The institutional economics of corruption and reform.* Cambridge, UK: Cambridge University Press.

[23] Lambsdorff, J.G. (2006). Causes and consequences of corruption: What do we know from a cross-section of countries?. Rose-Ackerman, S. (Ed.), *International handbook on the economics of corruption.* UK: Edward Elgar.

[24] Lederman, D., Loayza, N.V. & Soares, R.R. (2005). Accountability and corruption: Political institutions matter. *Economics & Politics, 17.*

[25] Martinez-Vazquez, J., Arze del Granado, J. & Boex, J. (2007). *Fighting corruption in the public sector.* Contributions to economic analysis 284. Amsterdam: Elsevier.

[26] Montinola, G. & Jackman, R.W. (2002). Sources of corruption: A cross-country study. *British Journal of Political Science, 32.*

[27] Myint, U. (2000). Corruption, causes, consequences and cures. *Asia-Pacific Development Journal, 7.*

[28] Paldam, M. (2002). The cross-country pattern of corruption. Economics, culture and the seesaw dynamics. *European Journal of Political Economy, 18.*

[29] Rontos, K., Sioussiouras, P. & Vavouras, I. (2012). Modeling the factors that determine the phenomenon of corruption in the Mediterranean and Balkan region. Tavidze, A. (Ed.), *Progress in economic research. Vol. 26.* New York: Nova Science Publishers, Inc. (in press).

[30] Rose-Ackerman, S. (2006). Introduction and overview. Rose-Ackerman, S. (Ed.), *International handbook on the economics of corruption.* Cheltenham, UK: Edward Elgar.

[31] Rose-Ackerman, S. (1999). *Corruption and government: causes, consequences, and reform.* Cambridge: Cambridge University Press.

[32] Salinas-Jiménez, M.M. & Salinas-Jiménez, J. (2007). Corruption, efficiency and productivity in OECD countries. *Journal of Policy Modeling, 29.*

[33] Salvatore, D. (*2004). Growth of poverty in a globalizing world. Journal of Policy Modeling, 26.*

[34] Salvatore, D. (2007). Growth, international inequalities, and poverty in a globalized world. *Journal of Policy Modeling, 29.*

[35] Seimenis, I. and Sioussiouras, P. (2003). *Euro-Mediterranean relations.* Thessaloniki: Zitis Publications (in Greek).

[36] Sioussiouras, P. (2007). The economic dimension of the Euro-Mediterranean partnership. *Mésogeios est une Revue d' Etudes Méditerranéennes, 31,* Paris.

[37] Sioussiouras, P. (2005). Corruption as a political phenomenon in the international field: The case of the Balkan states. *Corruption and Scandals,* Koutsoukis, K. & Sklias, P. (Eds.), Athens: Sideris Publications (in Greek).

[38] Sioussiouras, P. (2003). The Euro-Mediterranean free trade zone: Prospects and possibilities. *Mediterranean Quarterly, 14.*

[39] Sioussiouras, P. & Vavouras, I. (2012). Political rights, development and corruption in the Balkan and Arab Mediterranean countries. *Mediterranean Quarterly, 23.*

[40] Sung, H.-E. (2002). A convergence approach to the analysis of political corruption: A cross-national study. *Crime, Law and Social Change, 38.*

[41] Tanzi, V. (2000). *Policies, institutions and the dark side of economics.* Cheltenham, U.K.: Edward Elgar.

[42] Tanzi, V. (1998). Corruption around the world: Causes, consequences, scope and cures. *IMF Working Paper,* No. 63.

[43] Tiihonen, S. (2003). Central government corruption in historical perspectives. Tiihonen, S. (Ed.), *The History of Corruption in Central Government.* Amsterdam: IOS Press.

[44] Transparency International (2011). *Frequently asked questions about corruption,* http://www.transparency.org/news_room/faq/corruption_faq#faqcorr1 (access 21.3.2011).

[45] Transparency International (2010). *Corruption perceptions index.*

[46] Transparency International (2009), *Global corruption report 2009: Corruption and the private sector.* Cambridge University Press.

[47] Transparency International (2008). *Poverty and corruption.* Working Paper No. 2/2008.

[48] Treisman, D. (2000). The causes of corruption: A cross-national study. *Journal of Public Economics, 76.*

[49] UN (2004). *United Nations handbook on practical anti-corruption measures for prosecutors and investigators,* Vienna.

[50] UNDP (2010). *Human development report 2010*. New York: Palgrave.

[51] UNDP (2009). *Human development report 2009: Overcoming barriers: human mobility and development*. New York: Palgrave.

[52] UNDP (2008). *Tackling corruption, transforming lives: Accelerating human development in Asia and the Pacific*.

[53] UNDP (1990). *Human development report 1990: Concept and measurement of human development*. New York: Oxford University Press.

[54] Vavouras, I.S., Manolas, G.A & Sirmali, M.-E. (2010). Government, democracy and corruption. Interrelation and consequences in economic development. http://www.panteion.gr/kediva/governancedemocr&corruptionfinal.pdf (in Greek).

[55] Warren, M.E. (2004). What does corruption mean in a democracy?. *American Journal of Political Science, 48.*

[56] World Bank (2011). *World development indicators.* http://data.worldbank.org/indicator/NY.GNP.PCAP.CD.

[57] World Bank (2010a). *World development indicators database,* 15 December.

[58] World Bank (2010b). *The worldwide governance indicators, 2009 update. Aggregate indicators of governance 1996-2009*. www.govindicators.org

[59] World Bank (1997). *World development report 1997.* Washington D.C.: Oxford University Press.

[60] Zhang, Y., Cao, L. & Vaughn, M.S. (2009). Social support and corruption: Structural determinants of corruption in the world. *Australian and New Zealand Journal of Criminology, 42.*